SERVICE DATA
FILE NO. 150-119

TOSHIBA

STEREO RADIO CASSETT RECORDER

RT-8210S

SPECIFICATIONS

Usable Tapes:	C-30, C-60, C-90, C-120	Jacks:	Headphone 6.3ø
Tape Speed:	4.8cm/Sec. (1 7/8 ips)		Impedance 6K ohm
Track:	4-Track, 2-Channel, Stereophonic		External Speaker 3.5ø x 2
			Impedance 4 ohm
Recording System:	AC Bias (50 kHz)		External Microphone 3.5ø x 2
Erasing System:	AC Bias (50 kHz)		Impedance 1.5K ohm
Frequency Response:	60 to 10 kHz		Remote 2.5ø
Monitor:	Variable Monitor		AUX IN 3.5ø x 2
Output Power:	2.2W (Max.)		Impedance 6K ohm
Radio Frequencies:	FM 88 – 108 MHz	Power Consumption:	12W
	AM 525 – 1605 kHz	Power Supply:	AC 220/240V, 50 Hz
	LW 150 – 300 kHz		DC 9V ("D" cell x 6)
Intermediate Frequencies:	FM 10.7 MHz	Battery Life:	About 18 hours
	SW, AM, LW, 455 kHz	Dimensions:	374 (W) x 220 (H) x
Antennas:	Telescopic Antenna for FM		115 (D) mm
	Ferrite Core Antenna for AM	Weight:	4.3kg (with Batteries)
Speaker:	120mm x 2 P.D.S		

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OPERATING CONTROLS

FRONT SIDE

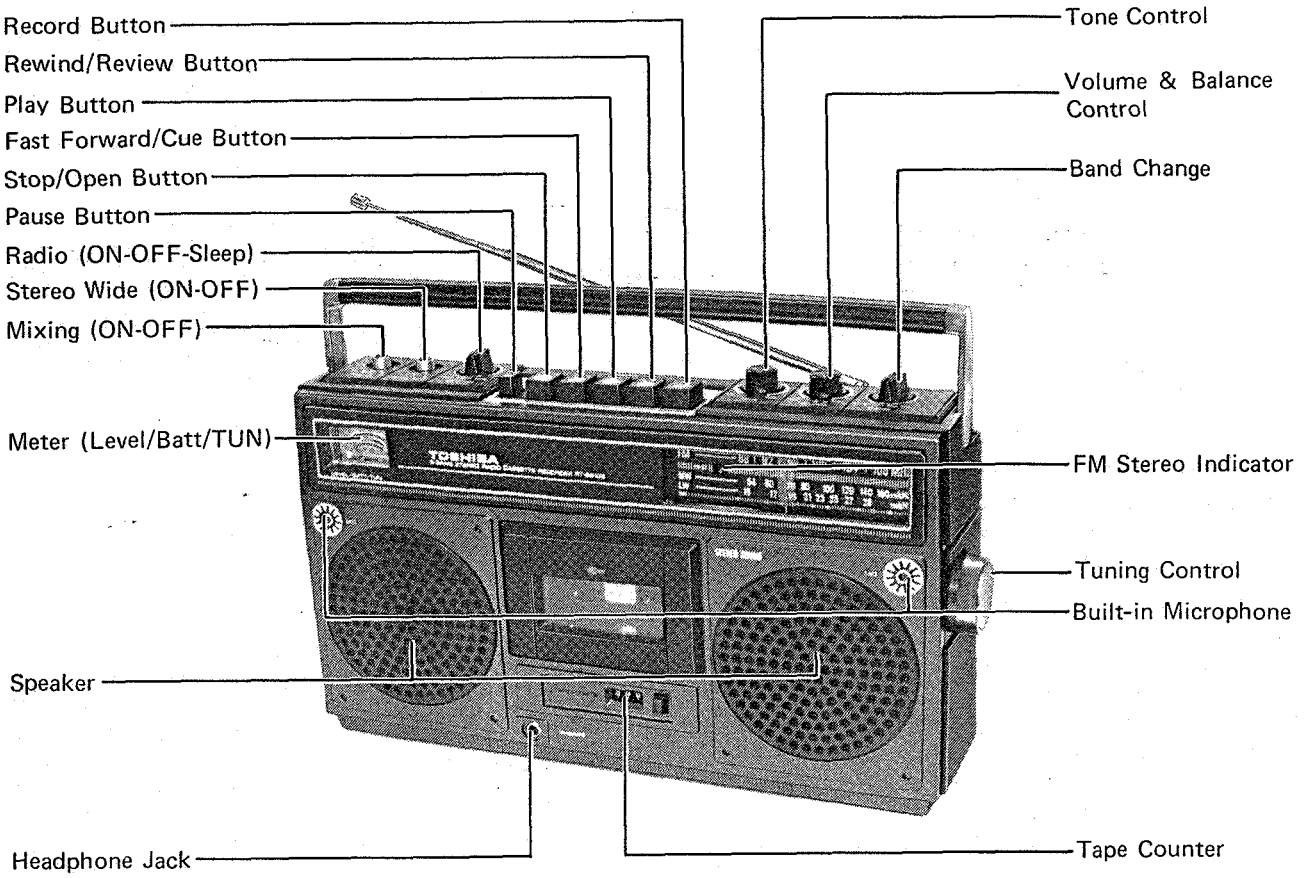


Figure 1.

LEFT SIDE

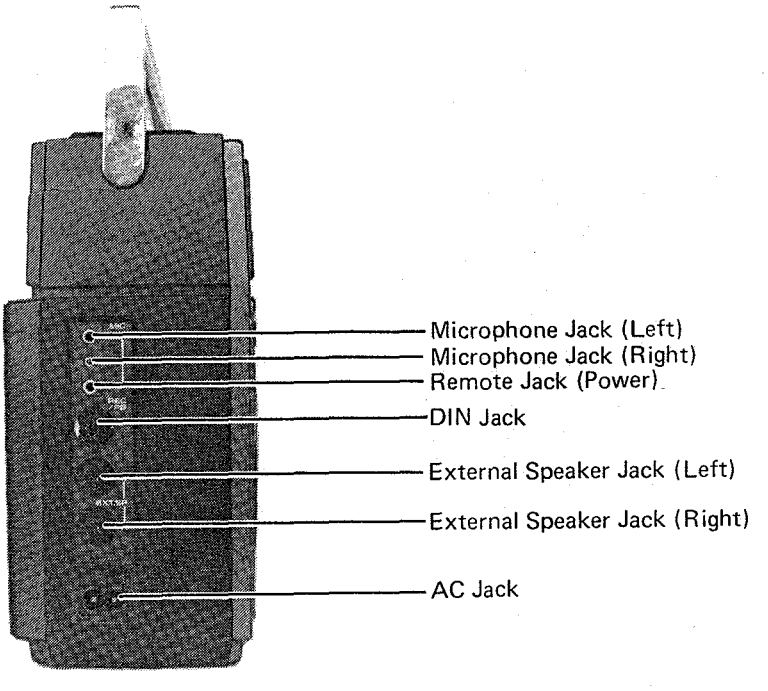


Figure 2.

DISASSEMBLY INSTRUCTIONS

CABINET BACK REMOVAL

1. Remove 6 screws Ⓐ and the lead wire of the telescopic antenna.
2. Separate the cabinet back from the cabinet front.

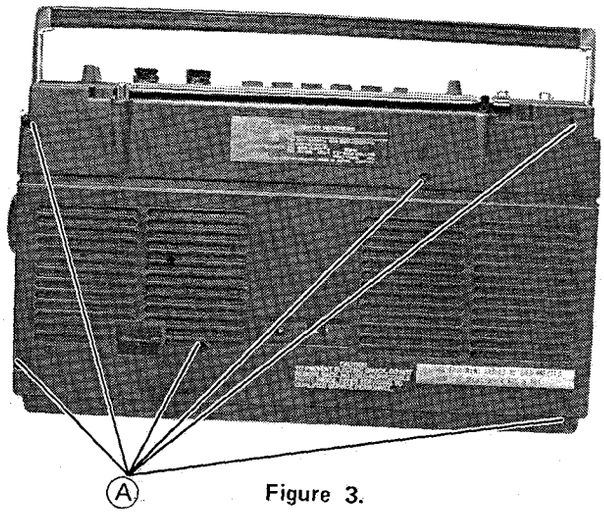


Figure 3.

P.C. BOARD REMOVAL (Audio P.C.B)

1. Remove 1 Knob (Radio).
2. Remove 5 screws Ⓑ and 7 wire holders Ⓒ.
3. Remove the jack plate (DC-9V, Beat cancel) and AC jack.
4. Separate the Audio P.C.B. from the cabinet center.

P.C. BOARD REMOVAL (Tuner P.C.B.) (Figure 4)

1. Remove 3 Knobs (Band, Volume and Tone).
2. Remove 5 screws Ⓓ.
3. Separate the Tuner P.C.B. from the cabinet center.

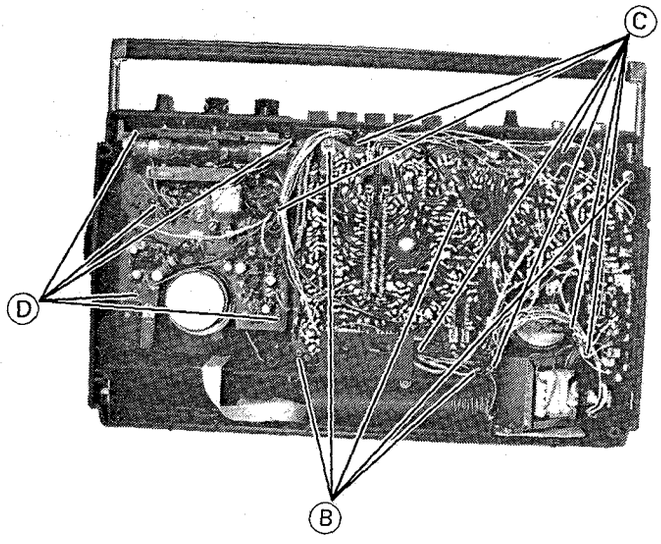


Figure 4.

MECHANISM ASSEMBLY REMOVAL

1. Remove 12 screws Ⓔ.
2. Separate the mechanism Ass'y from the cabinet front.

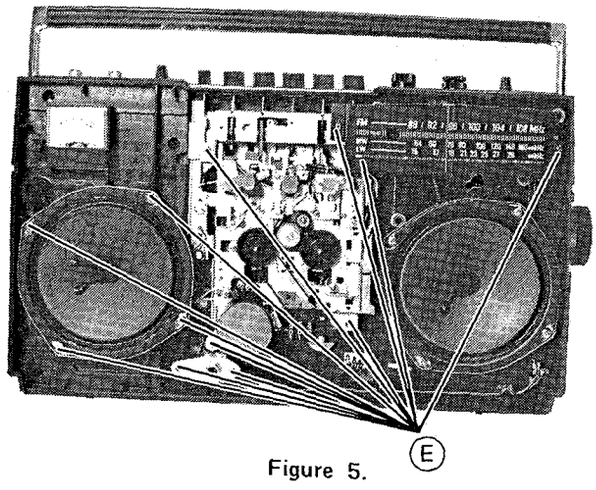


Figure 5.

ALIGNMENT INSTRUCTIONS

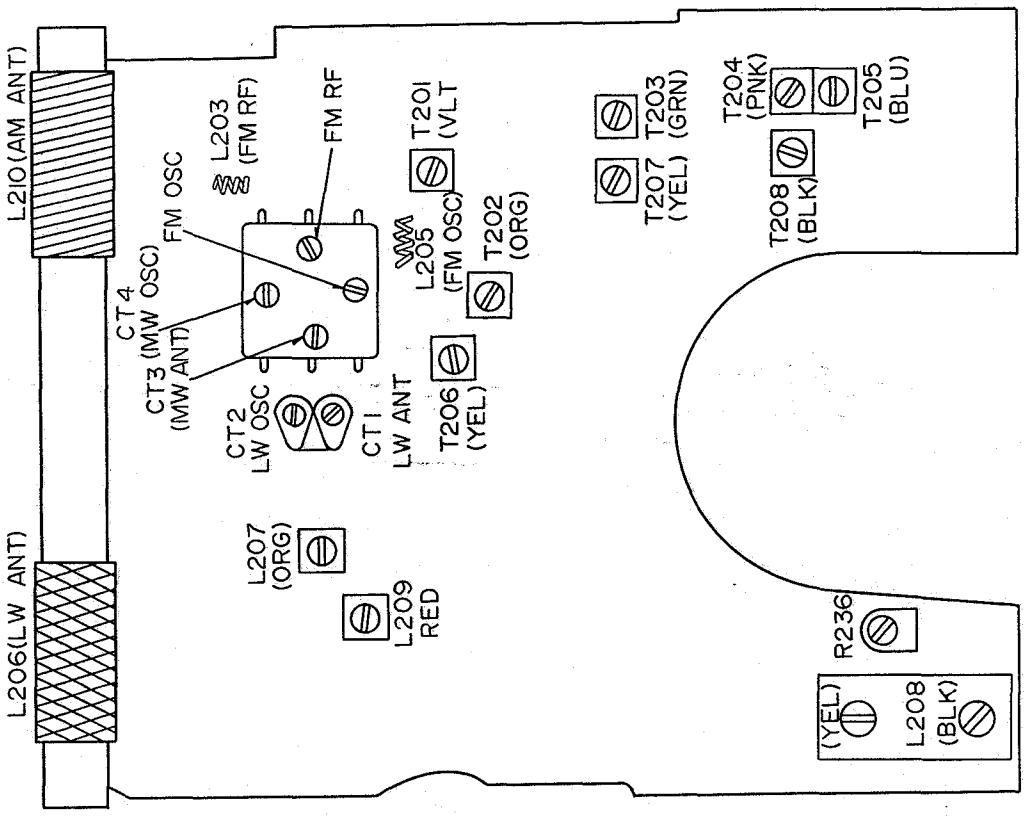


Figure 6.

TEST EQUIPMENTS

1. AM Signal Generator.
2. FM Signal Generator.
3. FM Sweep Generator with a wideband amplifier of approximately 500kHz, with 10.7MHz marker signal.
4. Oscilloscope with a wideband amplifier of approximately 100kHz.
5. Test loop–a coil of any size wire, one turn or more.
6. VTVM.
7. 75 ohm dummy antenna. (FM)

NOTE: During alignment, keep the signal generator output at the lowest level to maintain a usable output from the set.

Generator modulation (FM) other than IF alignment ..... 30%, 400 Hz
Generator modulation (AM) ..... 30%, 400 Hz
Generator connection of signal generator ..... To Chassis ground

AM ALIGNMENT

1. Turn on the AM signal generator and the VTVM, and allow a fifteen-minute warm-up period.
2. Using the test loop across the output of the signal generator, inductively connect the signal generator to the radio.
3. Connect the VTVM across the voice coil or an 4 ohm dummy load.
4. Set the band select switch to AM position.
5. Set the signal generator frequency as listed in AM-IF and LW ALIGNMENT CHART and maintain a sufficient output level to provide an indication on VTVM.
6. Set the volume control at mid-position.
7. Proceed as outlined in the AM-IF and LW ALIGNEMNT CHART.

AM-IF ALIGNMENT CHART

Band	Step	Signal Generator Frequency	Radio Dial Setting	Adjustment	Remarks
IF	1	455 kHz	Tuning Knob Fully Counter-clockwise (Lowest Frequency)	T206 (YEL) T207 (YEL) T208 (BLK)	Adjust for maximum indication.
AM	1	510 kHz	Tuning Knob Fully Counter-clockwise (Lowest Frequency)	L209 (AM OSC. Coil)	Adjust for maximum indication.
	2	1650 kHz	Tuning Knob Fully Clockwise (Highest Frequency)	CT4 (AM OSC. Trim.)	Adjust for maximum indication.
	3	Repeat steps 1 and 2 as required.			
	4	600 kHz	Tune to Signal.	L210 (AM Ant. Coil)	Adjust for maximum indication.
	5	1400 kHz	Tune to Signal.	CT3 (AM Ant. Trim.)	Adjust for maximum indication.
	6	Repeat steps 4 and 5 as required.			

LW ALIGNMENT CHART

Band	Step	Signal Generator Frequency	Radio Dial Setting	Adjustment	Remarks
LW	1	145 kHz	Tuning Knob Fully Counter-clockwise (Lowest Frequency)	L207 (LW OSC. Coil)	Adjust for maximum indication.
	2	310 kHz	Tuning Knob Fully Clockwise (Highest Frequency)	CT2 (LW OSC. Trim.)	Adjust for maximum indication.
	3	Repeat steps 1 and 2 as required.			
	4	170 kHz	Tune to Signal	L206 (LW Ant. Coil)	Adjust for maximum indication.
	5	270 kHz	Tune to Signal	CT1 (LW Ant. Trim.)	Adjust for maximum indication.
	6	Repeat steps 4 and 5 as required.			

FM-IF ALIGNMENT

1. Set the select switch to FM position.
2. Turn on both sweep generator and oscilloscope, and allow a fifteen-minute warm-up period.
3. Connect the RF SWEEP SIGNAL OUTPUT from the sweep generator through the loop antenna to the receiver.
4. Connect the vertical input of oscilloscope directly to the test point TUN OUT and connect the shielded lead to the chassis ground.
5. Connect the SWEEP VOLTAGE OUTPUT of the sweep generator to the oscilloscope.
6. Proceed as outlined in the FM-IF ALIGNMENT CHART.

Note: When adjusting FM-IF and Bandwidth, be sure to connect the Level Meter.

FM-IF ALIGNMENT CHART

Step	Signal coupling	Equip.	Tuning	Connection	Adjust. point	Pattern
1	Connect sweep generator output to a three-turn loop antenna of 10cm diameter.	Sweep generator of 10.7 MHz center freq. with 10.7 MHz marker	Tuning Knob fully counter-clockwise (Lowest Frequency)	Set scope for connecting output signal from TUN OUT to vertical axis of scope "V" and sweep generator output to horizontal axis "H".	T201 202 203 204	Turn the core of T205 fully clockwise and adjust as illustrated in Figure 9.
					T205 201 202 203 204	Adjust as illustrated in Figure 10.

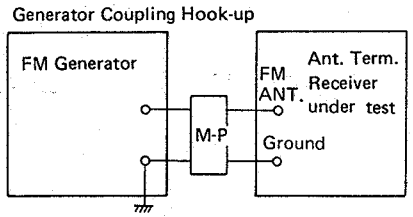


Figure 7.

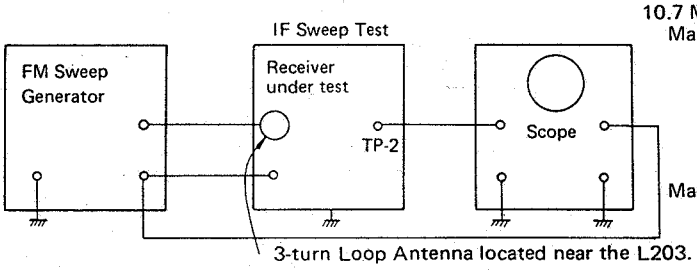


Figure 8.

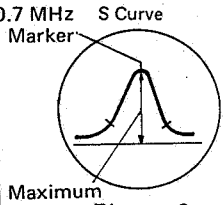


Figure 9.

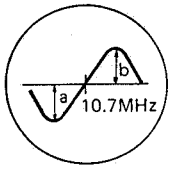


Figure 10.

FM-RF ALIGNMENT

1. Turn on the signal generator and the VTVM, and allow a fifteen-minute warm-up period.
2. Connect the signal generator output through a 75 ohm dummy antenna across FM ANT.
3. Connect the VTVM across the voice coil or an 8 ohm dummy load.
4. Set the volume control to mid-position.
5. Adjust the signal generator frequency as indicated in FM-RF ALIGNMENT CHART, and maintain a sufficient signal output level to provide a measurable indication.
6. Proceed as outlined in the FM-RF ALIGNMENT CHART.

CAUTION: When realigning the FM Receiving Frequency, the lowest side of the frequency range must not be below 87.5 MHz in order to comply with FTZ regulations in West Germany.

FM-RF ALIGNMENT CHART

Step	Signal Generator	Radio Dial Setting	Adjustment	Remarks
1	87.5MHz	Tuning Knob fully Counterclockwise (Lowest Frequency)	L205 (FM OSC. Coil)	Adjust for maximum output indication.
2	109MHz	Tuning Knob fully Clockwise (Highest Frequency)	CT2 (FM OSC. Trim.)	Adjust for maximum output indication.
3	Repeat steps 1 and 2 as required.			
4	90MHz	Tune to signal.	L203 (FM RF Coil)	Adjust for maximum output indication.
5	106MHz		CT1 (FM RF Trim.)	
6	Repeat steps 4 and 5 as required.			

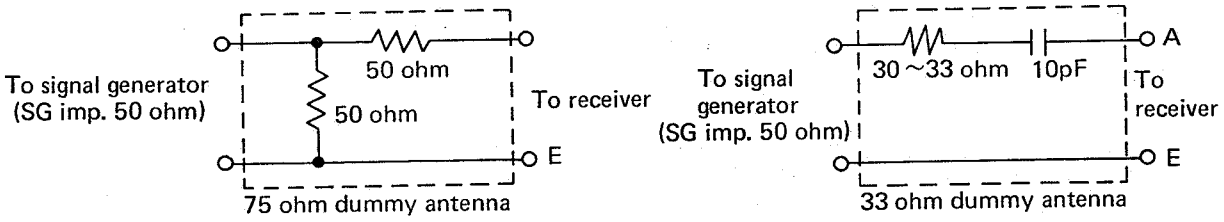


Figure 11.

FM MPX ALIGNMENT

1. Frequency Counter
2. Multiplex Signal Generator
3. VTVM

1. Connect a Multiplex Signal Generator to FM ANT. terminal.
2. Connect a VTVM (VM1) between pin 1 of IC201 and ground.
3. Connect other two VTVMs (VM2, VM3) to right and left speakers.
4. Set the signal of signal generator to 83 MHz, 60 dB monaural.
5. Receive signal and adjust the right and left volume controls so the readings on VTVMs (VM2, VM3) are 0 dB (1V).
6. Push the left channel stereo button of the signal generator and adjust coil L208 so the deflection of VTVM (VM1) is maximum. Then adjust coil L208 so the deflection of VTVM (VM2-Rch) is maximum.
7. Adjust the semi-fixed resistor R236 so the deflection of VTVM (VM3-Lch) is minimum.
   Note: Modulation degree of multiplex signal generator should be set to 10%, 1 kHz, 20.25 kHz.

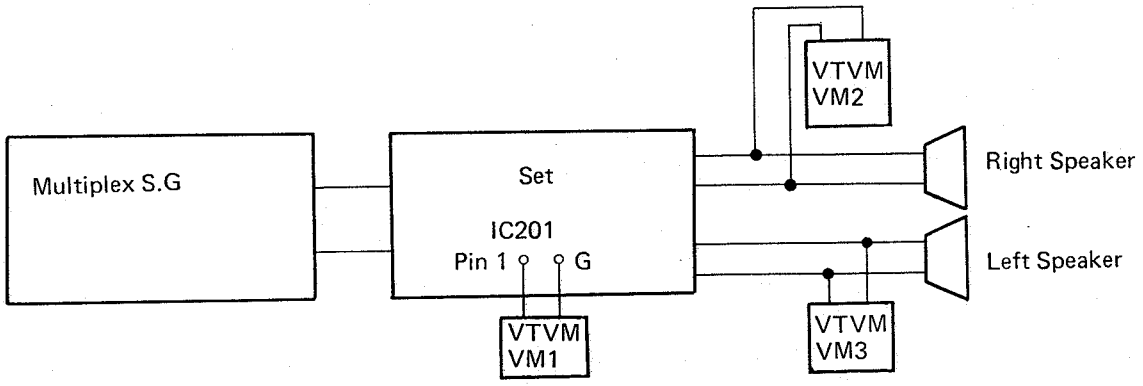


Figure 12.

TECHNICAL POINTS

RECORD BIAS CURRENT

1. Set the tape recorder to recording mode with the head connected.
2. Connect a VTVM to both terminals of resistor R109 (10 ohm) between TP1 and ground (in the right channel R110, between TP2 and ground).
3. Adjust the bias trap coil L103 (in the right channel L104) so that the variation of voltage is kept within 600μV (0.6mV) when the position of BEAT CANCEL switch on the rear of the set is changed from "1" to "2" and "3" or from "1" to "3".
4. Set the BEAT CANCEL switch to "1" position and rotate the semi-fixed resistor VR105 (in the right channel VR106) so the reading on the VTVM is 6.2mV (head current 620μA).
5. Proceed the same adjustment on the right channel.

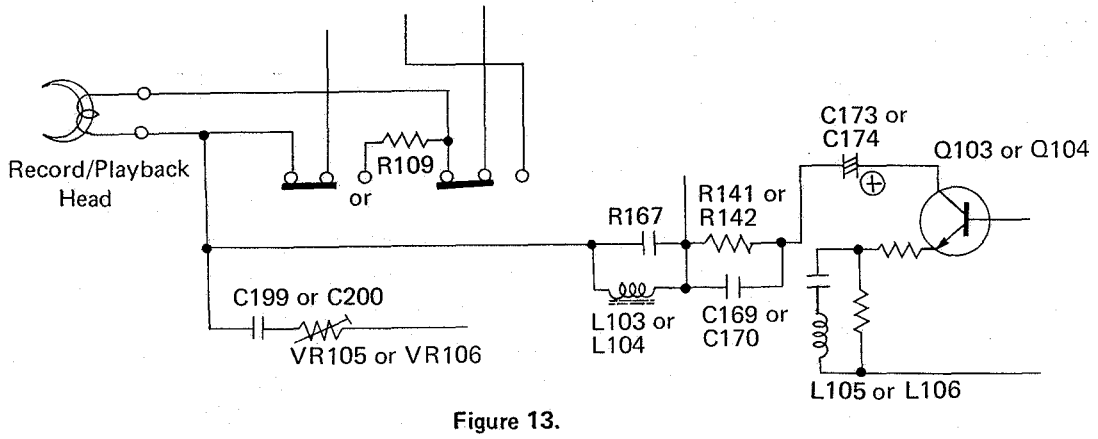


Figure 13.

RECORD/PLAYBACK HEAD ADJUSTMENT

1. Playback a test tape for lead azimuth adjustment.
2. Set the tone control to "HIGH" position and adjust the head azimuth adjustment screw so the output at high frequency is maximum.
3. After finishing adjustment, lock the screw.

   Note: Make adjustment at the middle of right and left levels regardless of a slight difference between the right and left channels.

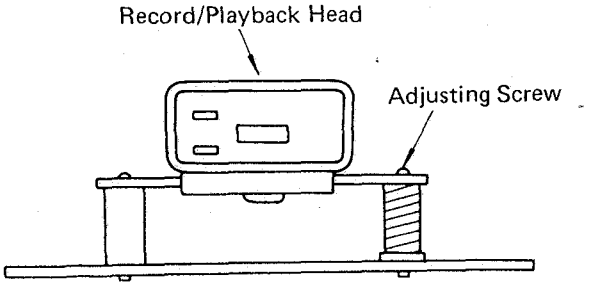


Figure 14.

RECORD EQUALIZER ADJUSTMENT

1. Connect a VTVM to both terminals of resistor R109 between TP1 and ground (in the right channel R110).
2. Apply 1 kHz signal to [MIC] jack with a signal generator. Adjust the signal level so the reading on the VTVM is 0.2mV.
3. Adjust L105 (in the right channel L106) so the reading on VTVM increases from 10 dB to 18 dB when the frequency of the signal generator is changed to 10 kHz.
4. Proceed the same adjustment on the right channel.

BLOCK DIAGRAM

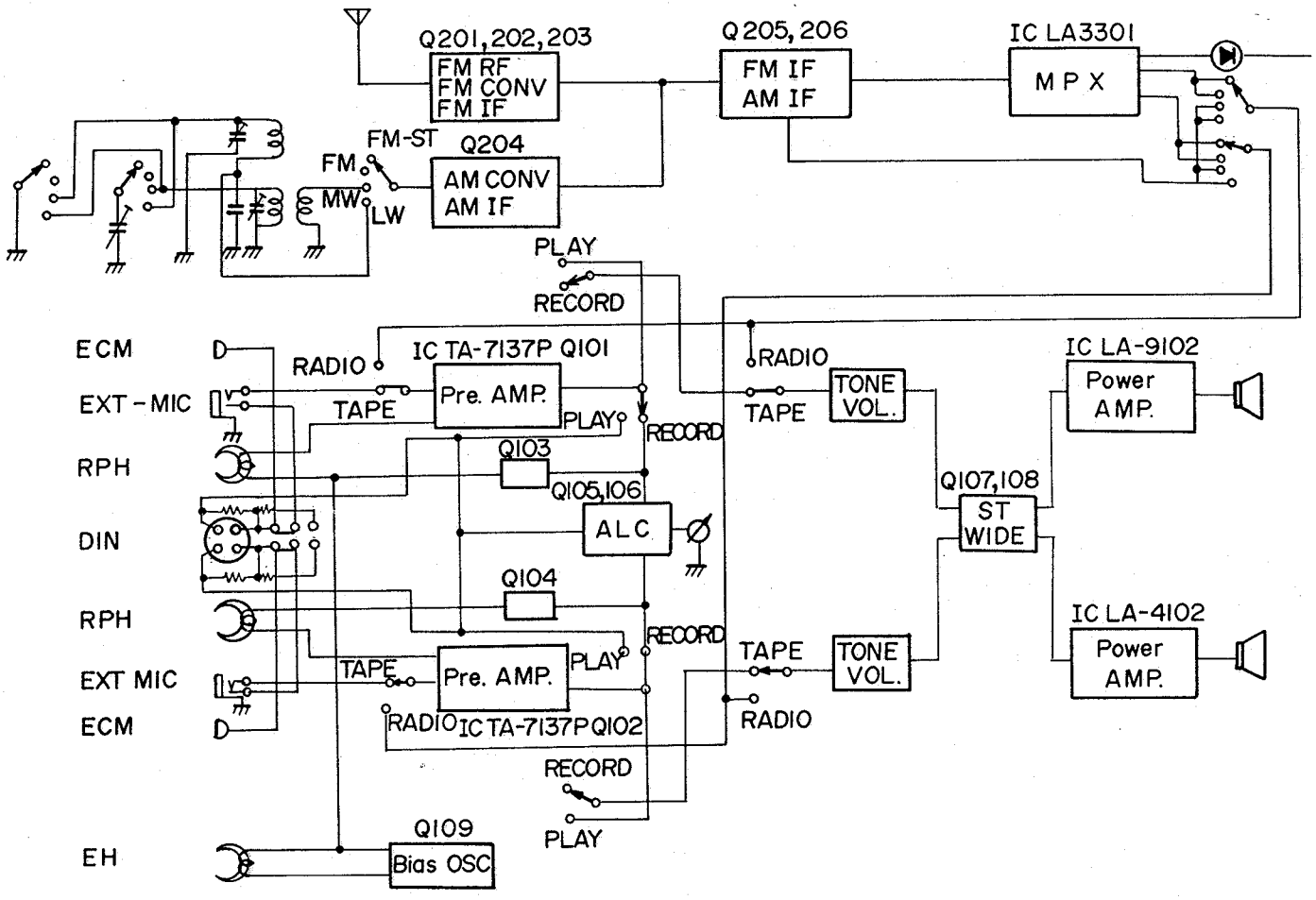


Figure 15.

DIAL CORD STRINGING

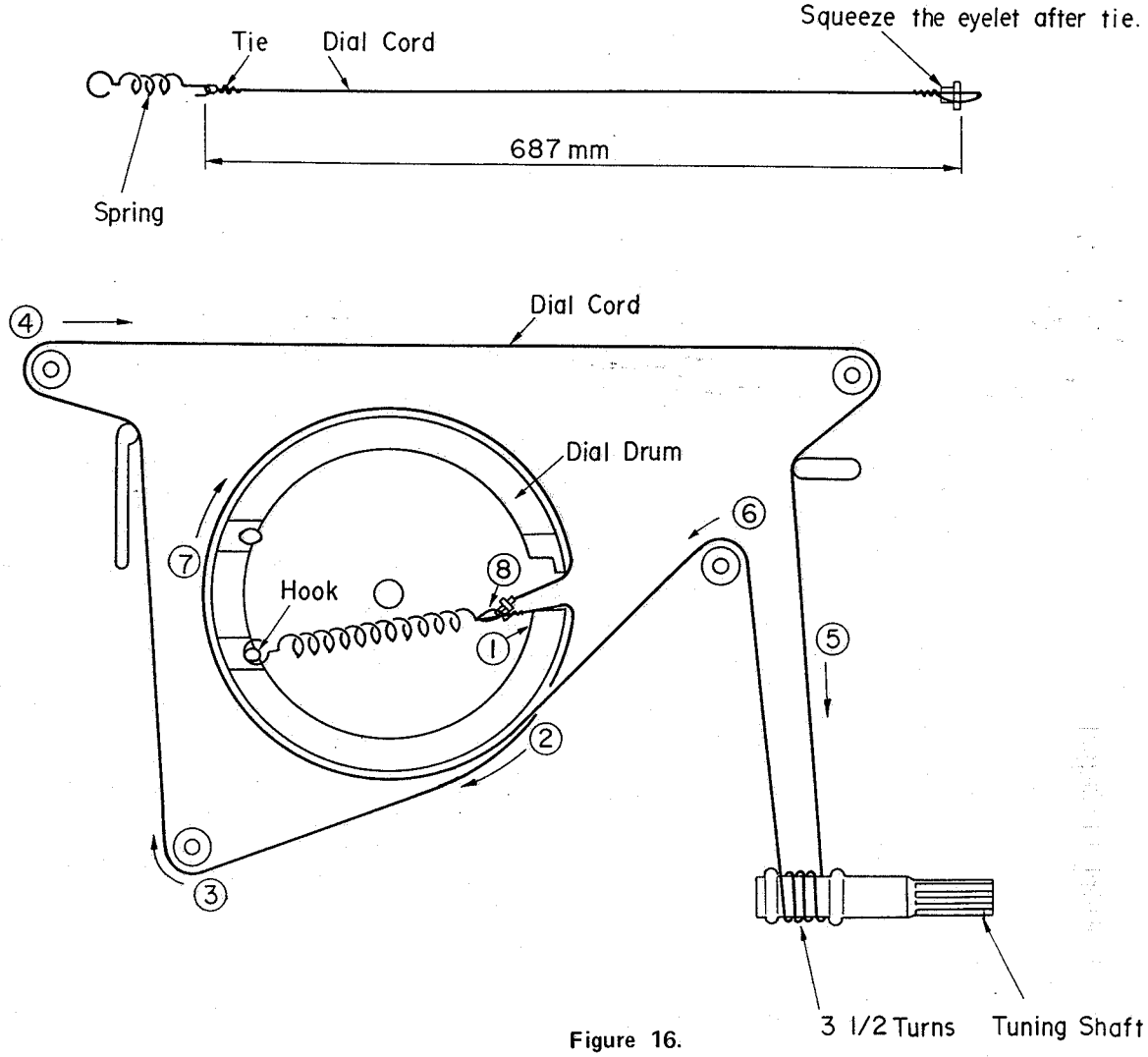


Figure 16.

GENERAL

1. Turn the variable capacitor fully clockwise (Plate fully open).
2. Wind the cord in the numerical stringing sequence indicated in the diagram.
3. Hook the spring on the Dial Drum.

ELECTRICAL PARTS LOCATIONS

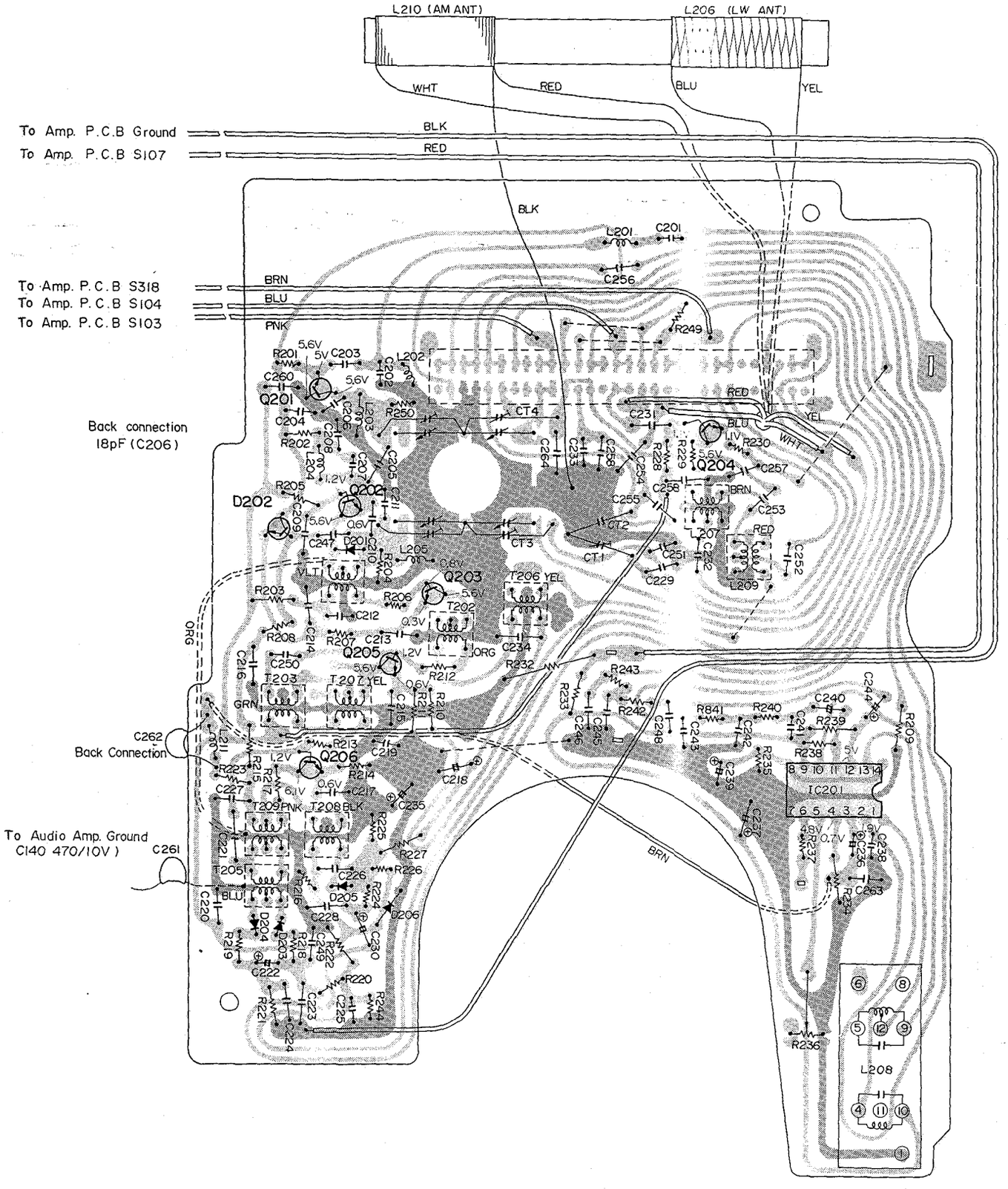


Figure 17.

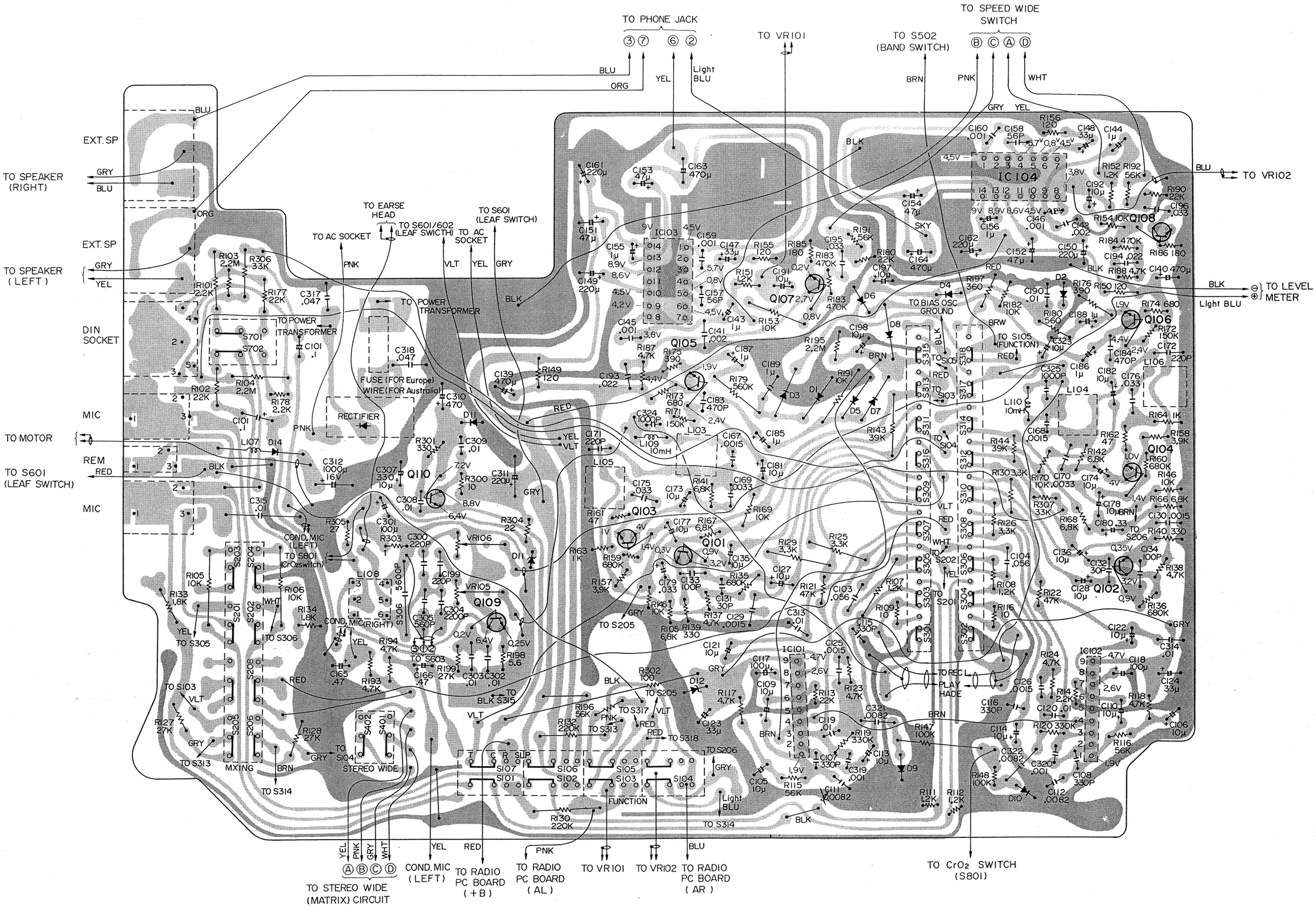
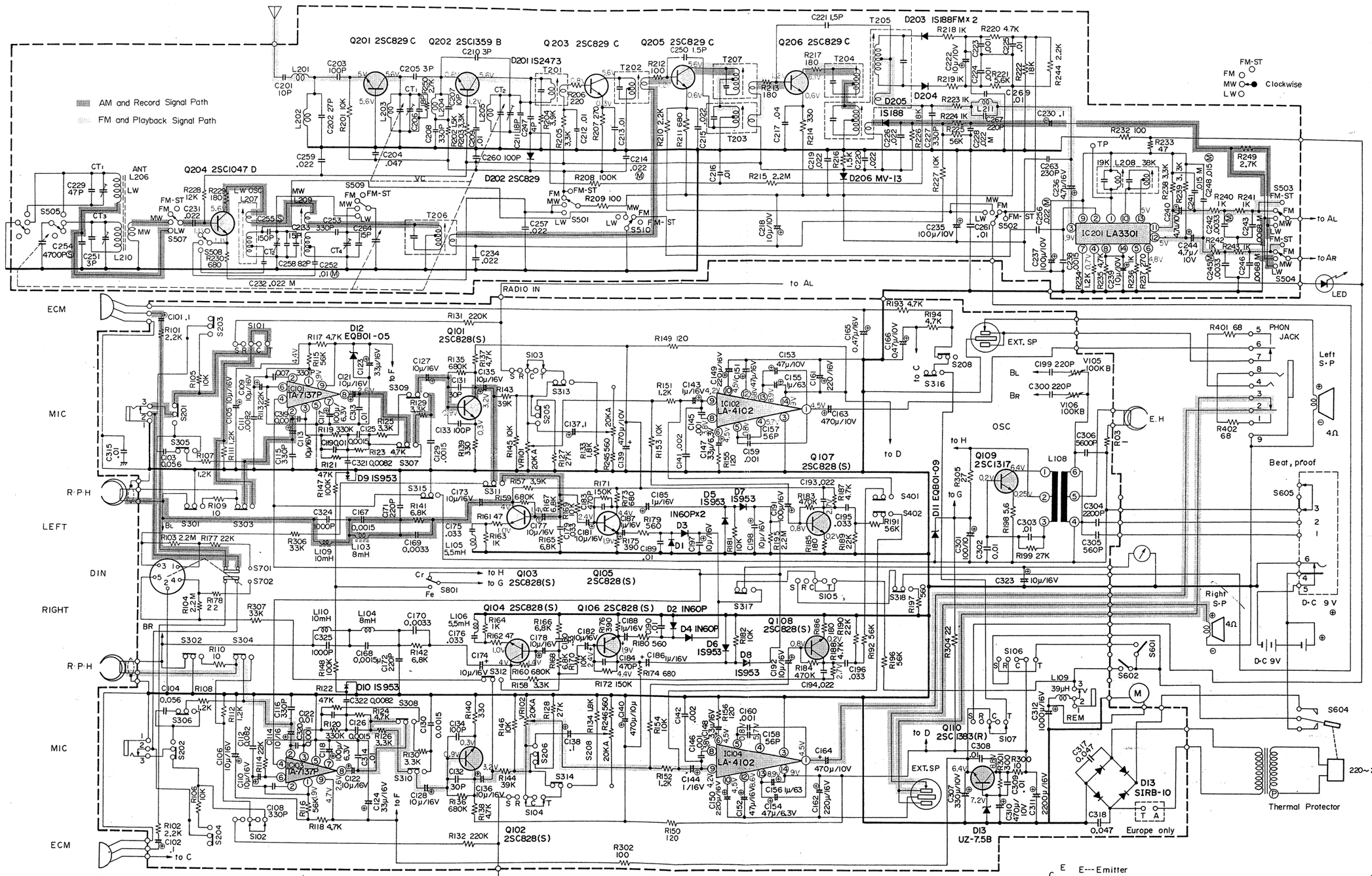

TO PHONE JACK
③ ⑦ ⑥ ②
TO VR101
TO S502 (BAND SWITCH)
TO SPEED WIDE SWITCH
Ⓑ Ⓒ Ⓐ Ⓓ
TO VR102
TO LEVEL METER
EXT. SP
TO SPEAKER (RIGHT)
EXT. SP
TO SPEAKER (LEFT)
DIN SOCKET
MIC
TO MOTOR
REM
TO S601 (LEAF SWITCH)
MIC
TO EARSE HEAD
TO S601/602 (LEAF SWITCH)
TO AC SOCKET
TO S601 (LEAF SWITCH)
TO AC SOCKET
TO POWER TRANSFORMER
TO POWER TRANSFORMER
FUSE (FOR Europe)
WIRE (FOR Australia)
RECTIFIER
COND. MIC (LEFT)
TO S601 (CrO2 switch)
COND. MIC (RIGHT)
TO S603
TO BIAS OSC
TO S105 (FUNCTION)
TO REC
PLAY
HADE
MIXING
STEREO WIDE
FUNCTION
IC104
IC103
IC101
IC102
Q105
Q107
Q108
Q106
Q110
Q103
Q101
Q109
Q104
Q102
TO STEREO WIDE (MATRIX) CIRCUIT
COND. MIC (LEFT)
TO RADIO PC BOARD (+B)
TO RADIO PC BOARD (AL)
TO VR101
TO VR102
TO RADIO PC BOARD (AR)
TO CrO2 SWITCH (S801)

Figure 18.

SCHEMATIC DIAGRAM



S101 ~ S107	SLEEP / RADIO / OFF	(OFF Position)
S201 ~ S206	MIXING (S207 Blank)	(OFF Position)
S301 ~ S318	RECORD / PLAYBACK	(PLAYBACK Position)
S401 ~ S402	MATRIX	(OFF Position)
S501 ~ S504	BAND SELECTOR	(FM Position)
S601 ~ S602	MOTOR SW	(OFF Position)
S603	BEAT PROOF	
S701 ~ 7702	DIN SW	(Microphone Position)
S801	TAPE SW	(CrO2 Position)

NOTE :

All resistance values are shown in ohms.

Except where noted by P all capacitance are shown in microfarads.

K = 1,000 M = 1,000,000 P = $\frac{1}{10^{12}}$

All voltages are measured with Tester of 30K Ohms.

Figure 19.

EXPLODED VIEW

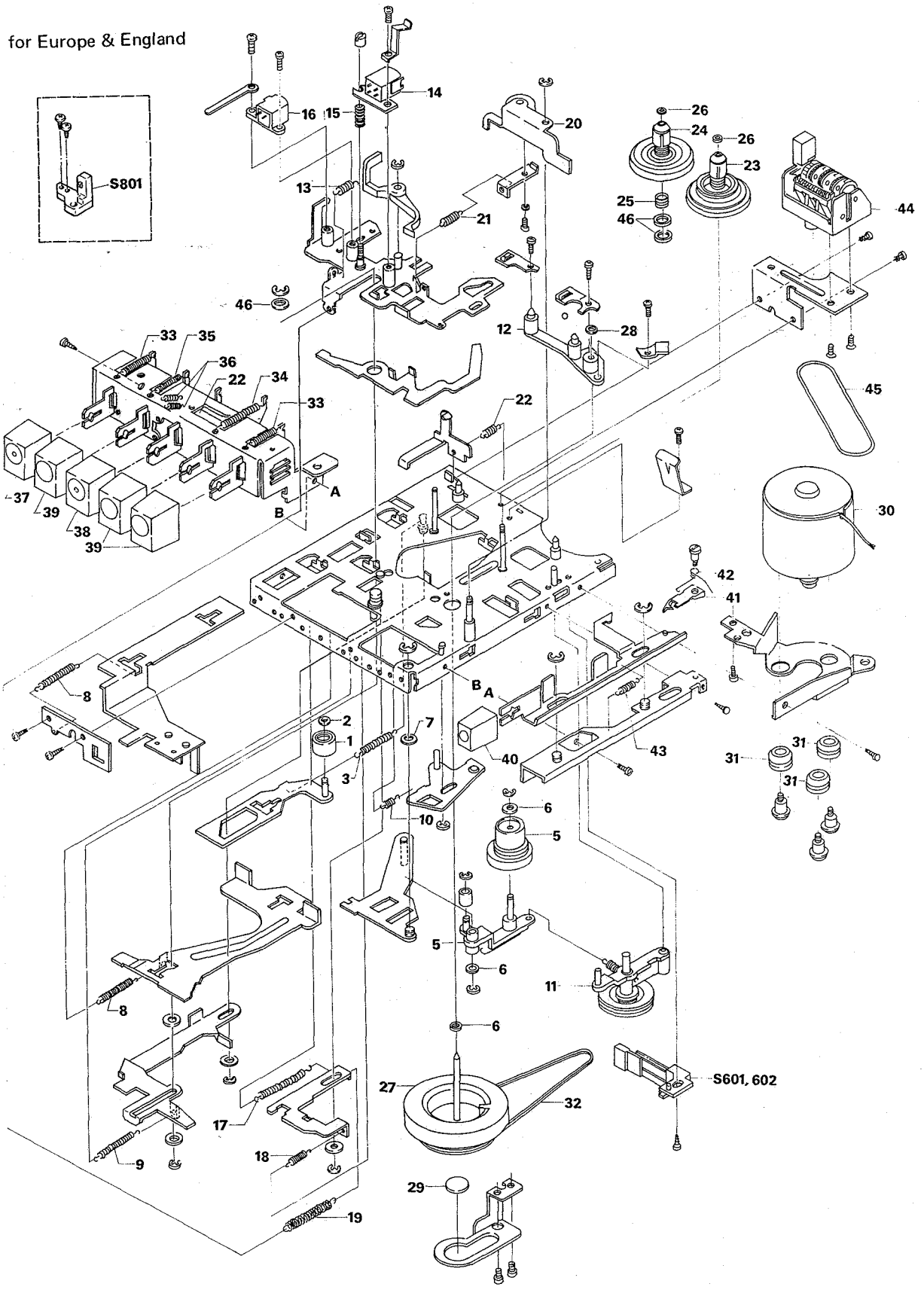


Figure 20.

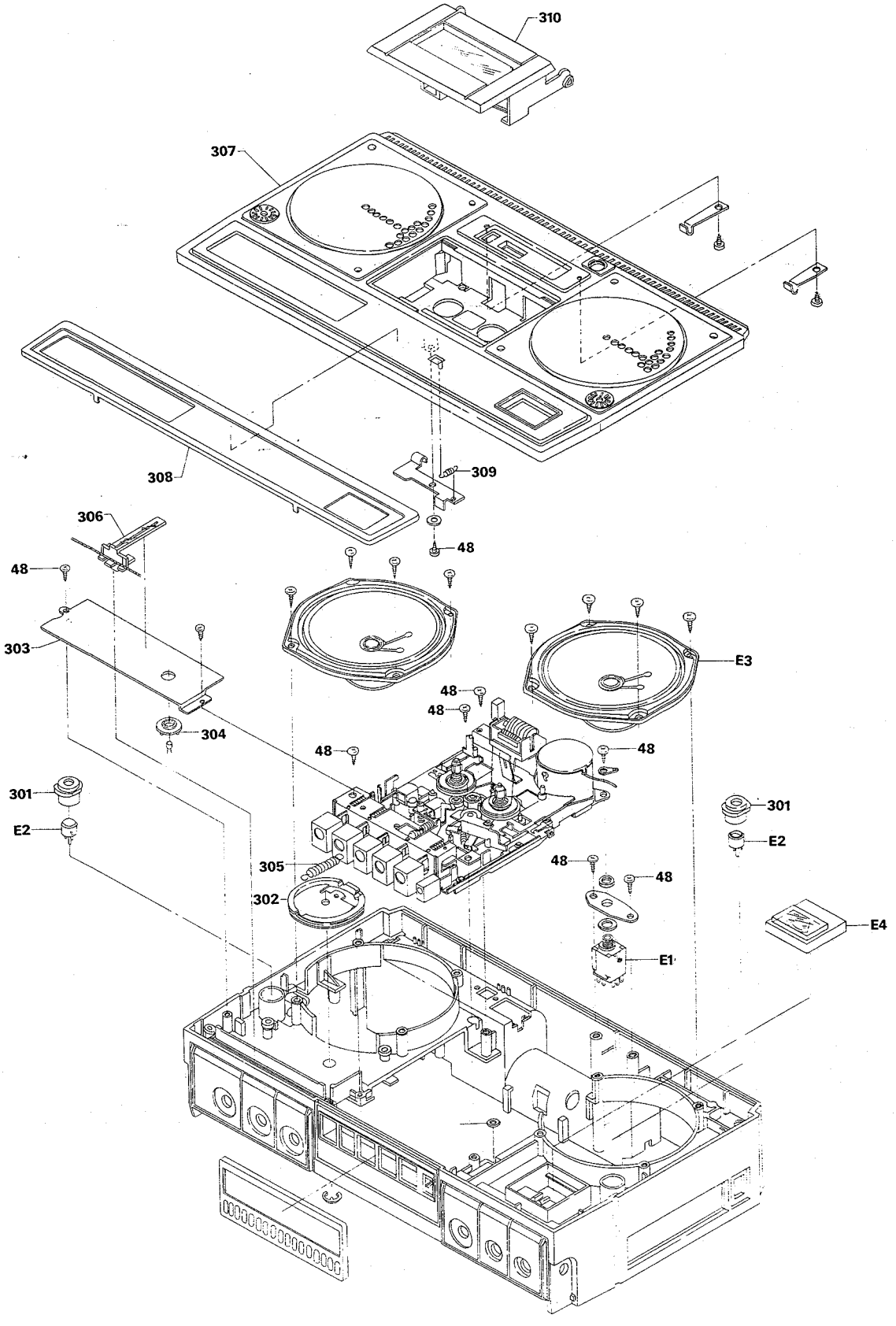


Figure 21.

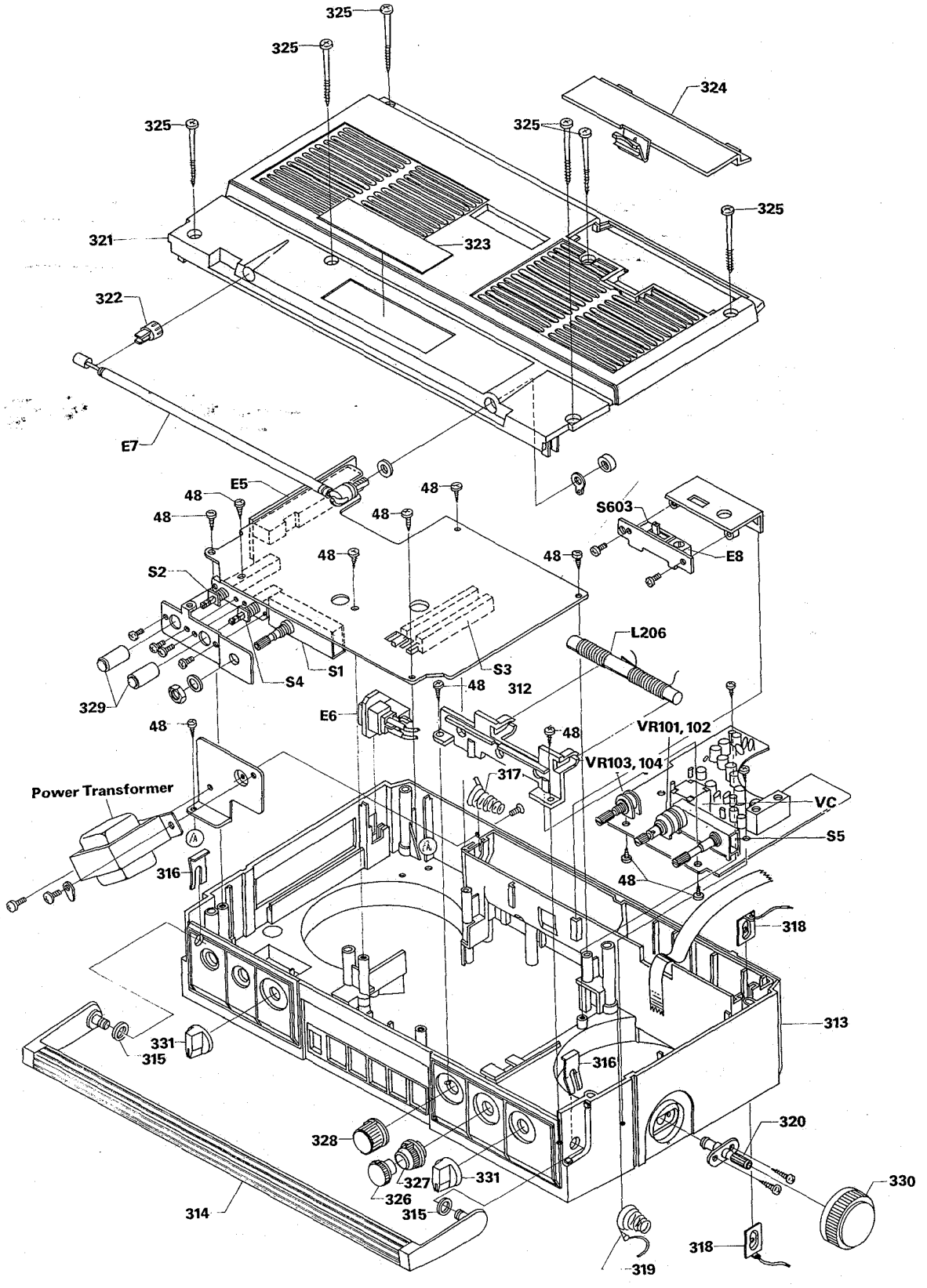

325
325
325
325
324
325
321
323
322
E7
48
E5
48
48
48
48
48
S603
E8
S2
48
L206
S1
S4
S3
329
48
312
E6
48
48
VR101, 102
VR103, 104
317
Power Transformer
VC
S5
316
48
318
313
331
315
316
328
320
327
331
326
315
330
314
318
319

Figure 22.

PARTS LIST

Symbol No.	Part No.	Description
TRANSISTORS, DIODES & IC'S		
Q101 to 108	22114204	Transistor, 2SC828(S)
Q109	22114545	Transistor, 2SC1317(R)
Q110	22114238	Transistor, 2SC1383(R)
Q201, 203, 205, 206	22114202	Transistor, 2SC829(C)
Q202	22114456	Transistor, 2SC1359(B)
Q204	22114406	Transistor, 2SC1047(D)
D1 to 4	22115290	Diode, 1N60P
D5 to 10	22115391	Diode, 1S953
D11	22115435	Zener Diode, EQB01-9R
D12	22115392	Diode, EQA01-05
D13	22115342	Rectifier, SIRB-10
D9	22115390	Diode, UZ7.5B
D201, 207	22115329	Diode, 1S2473
D202	22114411	Transistor, 2SC829(B)
D203 to 205	22115295	Diode, 1S188FM-1
D206	22115296	Diode (Varistor) MV-13
LED		Diode, TLR102(LED) Light Emitting
IC101, 103		I.C., TA7137P-ST
IC102, 104	22114544	I.C., LA4102K
IC201	22114379	I.C., LA3301
COILS & TRANSFORMERS		
L103, 104	22294301	Coil, FM, 8mH
L105, 106	22201006	Coil, FM, 2.4mH
L107	22211116	Coil, RF, 39mH
L108	22215095	Coil, Oscillator, Tape
L109, 110	22211237	Coil, Choke, 10mH
L201	22294340	Coil, FM Roading
L202	22294299	Coil, FM Antenna
L203	22292097	Coil, FM, RF
L204	22232157	Coil, FM, IF Trap
L205	22295070	Coil, FM Oscillator
L206	22242677	Coil, Antenna, Ferrite Core
L209	22245319	Coil, AM Oscillator (RED)
L208	22212056	Coil, FM Multiple
L207	22207247	Coil, LW, Oscillator
T201	22265684	Transformer, IF, FM (VLT)
T202	22265685	Transformer, IF, FM (ORG)
T203	22265686	Transformer, IF, FM (GRN)
T204	22265716	Transformer, IF, FM (PNK)
T205	22267342	Transformer, IF, FM (BLU)
T206, 207	22264660	Transformer, IF, AM (YEL)
T208	22264738	Transformer, IF, AM (BLK)
	22213995	Transformer, Power
ELECTRICAL PARTS		
S1-01 to 07	22146240	Switch, Push, Sleep/Radio

Symbol No.	Part No.	Description
S2-01 to 08	22146238	Switch, Push, Mixing
S3-01 to 18	22146241	Switch, Slide, Record/Playback
S4-01 to 02	22146239	Switch, Push, Matrix
S5-01 to 04	22146689	Switch, Rotary, Band Change
S6-01, -02	22146244	Switch, Motor
S603	22146242	Switch, Slide, Beat Cut
S701, 702	22195064	Switch, DIN
S801	22146229	Switch, Chrome
E1	22163619	Jack, Headphone
E2	22154179	Microphone Unit
E3	22151701	Speaker
E4	22104356	Meter, Level
E5	25865494	Jack Plate Ass'y
E6	22167801	AC Connector
E7	22124687	Telescopic Antenna
E8	22163618	Jack, AC Adaptor
E9	22163664	Jack, Small, 3.5ø
E10	22163663	Jack, Midget, 2.5ø
E11	22167813	Socket, DIN, 5Pins
E12	22167814	Socket, DIN, 2Pins
E13	22144185	Fuse, 1A, Europe only

CAPACITORS

D = ±0.25pF, J = ±5%, K = ±10%, M = ±20%, Z = -20+80%

(Amplifier Section)		
C101, 102	22362104	0.1μF, K, Ceramic
C103, 104	22372563	0.056μF, K, Mylar
C105, 106	22445100	10μF, 16V, Electrolytic
C107, 108	22362331	330pF, K, Ceramic
C109, 110	22445100	10μF, 16V, Electrolytic
C111, 112	22362682	0.0068μF, K, Ceramic
C113, 114	22445100	10μF, 16V, Electrolytic
C115, 116	22362331	330pF, K, Ceramic
C117, 118	22442101	100μF, 6.3V, Electrolytic
C119, 120	22362103	0.01μF, K, Ceramic
C121, 122	22445100	10μF, 16V, Electrolytic
C123, 124	22445330	33μF, 16V, Electrolytic
C125, 126	22362152	0.0015μF, K, Ceramic
C127, 128	22445100	10μF, 16V, Electrolytic
C129, 130	22362152	0.0015μF, K, Ceramic
C131, 132	22372300	30pF, K, Mylar
C133, 134	22362101	100pF, K, Ceramic
C135, 136	22445100	10μF, 16V, Electrolytic
C137, 138	22443108	0.1μF, 10V, Electrolytic
C139, 140	22443471	470μF, 10V, Electrolytic
C141, 142	22362202	0.002μF, K, Ceramic
C143, 144	22445109	1μF, 16V, Electrolytic
C145, 146	22362102	0.001μF, K, Ceramic
C147, 148	22442339	3.3μF, 6.3V, Electrolytic
C149, 150	22445221	220μF, 16V, Electrolytic
C151, 152	22445470	47μF, 16V, Electrolytic
C153, 154	22445470	47μF, 16V, Electrolytic

Symbol No.	Part No.	Description
C155, 156	22445109	1μ/16V, Electrolytic
C157, 158	22362560	56pF, K, Ceramic
C159, 160	22362102	0.001μF, K, Ceramic
C161, 162	22445221	220μF, 16V, Electrolytic
C163, 164	22443471	470μF, 10V, Electrolytic
C165, 166	22445478	0.47μF, 16V, Electrolytic
C167, 168	22362152	0.0015μF, K, Ceramic
C169, 170	22362332	0.0033μF, K, Ceramic
C171, 172	22363221	220pF, M, Ceramic
C173, 174	22445100	10μF, 16V, Electrolytic
C175, 176	22362333	0.033μF, K, Mylar
C177, 178	22445100	10μF, 16V, Electrolytic
C179, 180	22443339	0.33μF, 10V, M, Electrolytic
C181, 182	22445100	10μF, 16V, Electrolytic
C183, 184	22381471	470pF, J, Polystyrene
C185, 186	22445109	1μF, 16V, Electrolytic
C187, 188	22445109	1μF, 16V, Electrolytic
C189, 190	22361103	0.01μF, K, Ceramic
C191, 192	22445100	10μF, 16V, Electrolytic
C193, 194	22372223	0.022μF, K, Mylar
C195, 196	22372333	0.033μF, K, Mylar
C197, 198	22445100	10μF, 16V, Electrolytic
C199, 300	22363221	220pF, M, Ceramic
C301	22443101	100μF, 10V, Electrolytic
C302	22342103	0.01μF, Z, Ceramic
C303	22342103	0.01μF, Z, Ceramic
C304	22362222	2200pF, K, Ceramic
C305	22362331	330pF, K, Ceramic
C306	22382562	5600pF, K, Polystyrene
C307	22443331	330μF, 10V, Electrolytic
C308	22342103	0.01μF, Z, Ceramic
C309	22342103	0.01μF, Z, Ceramic
C310	22443471	470μF, 10V, Electrolytic
C311	22445222	2200μF, 16V, Electrolytic
C312	22445102	1000μF, 16V, Electrolytic
C315	22342103	0.01μF, Z, Ceramic
C317	22342473	0.047μF, Z, Ceramic
C318	22342473	0.047μF, Z, Ceramic
C321	22362822	0.0082μF, K, Ceramic
C323	22445100	10μF, 16V, Electrolytic
C325	22362102	1000pF, K, Ceramic
(Tuner Section)		
C201	22362100	10pF, K, Ceramic
C202	22362270	27pF, K, Ceramic
C203	22362101	100pF, K, Ceramic
C204	22342473	0.047μF, Z, Ceramic

Symbol No.	Part No.	Description
C205	22361309	3pF, D, Ceramic
C206	22362180	18pF, K, Ceramic
C207	22362100	10pF, K, Ceramic
C208	22362331	330pF, K, Ceramic
C209	22342103	0.01μF, Z, Ceramic
C210	22361309	3pF, D, Ceramic
C211	22362180	18pF, K, Ceramic
C212	22342103	0.01μF, Z, Ceramic
C213	22342103	0.01μF, Z, Ceramic
C214	22372223	0.022μF, M, Mylar
C215	22342223	0.022μF, Z, Ceramic
C216	22342103	0.01μF, Z, Ceramic
C217	22342403	0.04μF, Z, Ceramic
C218	22443100	10μF, 10V, Electrolytic
C219	22342223	0.022μF, Z, Ceramic
C220	22342223	0.022μF, Z, Ceramic
C221	22361159	1.5pF, D, Ceramic
C222	22443100	10μF, 10V, Electrolytic
C223	22342102	0.001μF, Z, Ceramic
C224	22342102	0.001μF, Z, Ceramic
C225	22342102	0.01μF, Z, Ceramic
C226	22342223	0.022μF, Z, Ceramic
C227	22362331	330pF, K, Ceramic
C228	22342103	0.01μF, Z, Ceramic
C229	22362470	47pF, K, Ceramic
C230	22443108	0.1μF, M, 10V, Electrolytic
C231	22342223	0.022μF, Z, Ceramic
C232	22373223	0.022μF, M, Mylar
C233	22361150	15pF, D, Ceramic
C234	22342223	0.022μF, Z, Ceramic
C235	22443101	100μF, 10V, Electrolytic
C236	22445479	4.7μF, 16V, Electrolytic
C237	22443101	100μF, 10V, Electrolytic
C238	22362152	0.0015μF, K, Ceramic
C239	22443100	10μF, 10V, Electrolytic
C240	22443479	4.7μF, 10V, Electrolytic
C241	22363153	0.015μF, M, Ceramic
C242	22373332	0.0033μF, M, Mylar
C243	22373682	0.0068μF, M, Mylar
C244	22443479	4.7μF, 10V, Electrolytic
C245	22373332	0.0033μF, M, Mylar
C246	22373682	0.0068μF, M, Mylar
C247	22361409	4pF, D, Ceramic
C248	22363153	0.015μF, M, Ceramic
C249	22342103	0.01μF, Z, Ceramic
C250	22361159	1.5pF, D, Ceramic
C251	22361309	3pF, D, Ceramic
C252	22372103	0.01μF, M, Mylar
C253	22362331	330pF, K, Ceramic
C254	22382472	4700pF, K, Polystyrene
C255	22362151	150pF, Polystyrene
C256	22373223	0.022μF, M, Mylar
C257	22342223	0.022μF, Z, Ceramic

Symbol No.	Part No.	Description
C258	22362820	82pF, K, Ceramic
C259	22342223	0.022μF, Z, Ceramic
C260	22362101	100pF, K, Ceramic
C261	22342103	0.01μF, Z, Ceramic
C262	22362221	220pF, K, Ceramic
C263	22362331	330pF, K, Ceramic
C264	22362150	15pF, K, Ceramic
VC	22308160	Poly-Variable

RESISTORS

Resistors are fixed carbon film ±5%, ¼W, unless otherwise noted. K = 1000

Symbol No.	Part No.	Description
(Amplifier Section)		
R101, 102	22555222	2.2K ohm
R103, 104	22555205	2M ohm
R105, 106	22555103	10K ohm
R107, 108	22555122	1.2K ohm
R109, 110	22555100	10 ohm
R111, 112	22555122	1.2K ohm
R113, 114	22555223	22K ohm
R115, 116	22555563	56K ohm
R117, 118	22555472	4.7K ohm
R119, 120	22555334	330K ohm
R121, 122	22555473	47K ohm
R123, 124	22555472	4.7K ohm
R125, 126	22555332	3.3K ohm
R127, 128	22555273	27K ohm
R129, 130	22555332	3.3K ohm
R131, 132	22555224	220K ohm
R133, 134	22555182	1.8K ohm
R135, 136	22555684	680K ohm
R137, 138	22555472	4.7K ohm
R139, 140	22555331	330 ohm
R141, 142	22555683	6.8K ohm
R143, 144	22555393	39K ohm
R145, 146	22555103	10K ohm
R147, 148	22555104	100K ohm
R149, 150	22555121	120 ohm
R151, 152	22555122	1.2K ohm
R153, 154	22555103	10K ohm
R155, 156	22555121	120 ohm
R157, 158	22555392	3.9K ohm
R159, 160	22555684	680K ohm
R161, 162	22555470	47 ohm
R163, 164	22555102	1K ohm
R165, 166	22555682	6.8K ohm
R167, 168	22555682	6.8K ohm
R169, 170	22555103	10K ohm
R171, 172	22555154	150K ohm
R173, 174	22555681	680 ohm
R175, 176	22555391	390 ohm
R177, 178	22555223	22K ohm
R179, 180	22555561	560 ohm
R181, 182	22555103	10K ohm
R183, 184	22555474	470K ohm
R185, 186	22555181	180 ohm
R187, 188	22555472	4.7K ohm
R189, 190	22555223	22K ohm
R191, 192	22555563	56K ohm
R193, 194	22555472	4.7K ohm
R195	22555225	2.2M ohm
R196	22555563	56K ohm
R197	22545561	560 ohm
R198	22555569	5.6 ohm
R199	22555273	27K ohm
R300	22555100	10 ohm
R301	22555331	330 ohm
R304	22570340	22 ohm, Metal Fixed 1W ±10%
R305	22555270	27 ohm
R306, 307	22555333	33K ohm
R401	22555680	68 ohm
R402	22555680	68 ohm
VR101, 102	22651611	Variable, 20K ohm-A, Volume
VR103, 104	22651610	Variable, 20K ohm-A, Tone
VR105, 106	22658430	Semi-fixed Variable
(Tuner Section)		
R201	22555103	10K ohm
R202	22555152	1.5K ohm
R203	22555332	3.3K ohm
R204	22555392	3.9K ohm
R205	22555332	3.3K ohm
R206	22555221	220 ohm
R207	22555271	270 ohm
R208	22555104	100K ohm
R209	22555101	100 ohm
R210	22555222	2.2K ohm
R211	22555681	680 ohm
R212	22555101	100 ohm
R213	22555181	180 ohm
R214	22555331	330 ohm
R215	22555225	2.2M ohm
R216	22555152	1.5K ohm
R217	22555181	180 ohm
R218	22555102	1K ohm
R219	22555102	1K ohm
R220	22555472	4.7K ohm
R221	22555562	5.6K ohm
R222	22555183	18K ohm
R223	22555102	1K ohm
R224	22555102	1K ohm
R225	22555563	56K ohm
R226	22555183	18K ohm

Symbol No.	Part No.	Description
R227	22555103	10K ohm
R228	22555123	12K ohm
R229	22555181	180 ohm
R230	22555681	680 ohm
R231	22555153	15K ohm
R232	22555101	100 ohm
R233	22555470	47 ohm
R234	22555122	1.2K ohm
R235	22555472	4.7K ohm
R236	22658431	Semi-fixed Variable
R237	22555271	270 ohm
R238	22555332	3.3K ohm
R239	22555332	3.3K ohm
R240	22555102	1K ohm
R241	22555102	1K ohm
R242	22555102	1K ohm
R243	22555102	1K ohm
R244	22555222	2.2K ohm
R249	22555272	2.7K ohm
	MECHANISM	
1	25713176	Roller Ass'y, Rewind
2	25764490	Washer, Rewind
3	25771821	Spring, Rewind Slide Plate
4	25719300	Fast Forward Lever Ass'y
5	25713177	Fast Forward Roller Ass'y
6	25764392	Washer, Special
7	25764508	Washer, PS, for FF Lever
8	25771743	Spring, Tension
9	25771822	Spring, Cue Slide Plate
10	25771823	Spring, Shut Off
11	25719299	Lever Ass'y, Flection
12	25725356	Holder
13	25771575	Spring, Tension
14	22217290	Head, Record/Playback
15	25772191	Spring, Pressure
16	22218187	Head, Erase
17	25771824	Spring, Play Slide Plate
18	25771825	Spring, Play Slide Plate
19	25771826	Spring, Head Bracket
20	25717359	Pressure Roller
21	25772417	Spring, Pressure Roller
22	25771638	Spring, Tension
23	25712323	Hub Plate, Take-up
24	25712266	Hub Plate, Supply
25	25771833	Spring, Backtension
26	25754234	Washer, Hub Plate

Symbol No.	Part No.	Description
27	25751539	Flywheel
28	25764397	Washer, Special
29	25764262	Holder, Pivot
30	22125753	Motor
31	25761292	Rubber, Shock Previntion
32	25755348	Belt, Drive
33	25771827	Spring, Tension
34	25771828	Spring, FF Button
35	25771829	Spring, Switch Lever
36	25771830	Spring, Lock Plate
37	25716272	Cassette Button Ass'y, Record
38	25716273	Cassette Button Ass'y, Play
39	25716274	Cassette Button Ass'y, Stop/ Review & Cue
40	25716275	Cassette Button Ass'y, Pause
41	25748204	Pause Arm
42	25771831	Spring, Pause
43	25771893	Spring, Take-up Lever
44	25873174	Counter, Tape
45	25755308	Belt, Counter
46	25764507	Washer, PS
47	22707051	Screw, FLT M3 x 6mm, BLK
48	22701326	Screw, BID M3 x 8mm, BLK Tapping
49	25757118	Steel Ball
50	25713452	Pulley, Motor
51	22707177	Screw, Special, Motor
	25748220	Rewind Slide Plate Squeeze Ass'y
	25748221	Fast Forward Lever Squeeze Ass'y
	25748222	Record Slide Plate Squeeze Ass'y
	25748223	Pause Slide Plate Squeeze Ass'y
	CABINET PARTS	
301	25845575	Support, Microphone
302	22742183	Dial Drum
303	25827672	Dial Plate
304	25841215	Holder, LED
305	25771816	Spring, Dial
306	25741249	Pointer
307	25813192	Front Panel Ass'y
308	25827673	Nameplate, Front
309	25771832	Spring, Fast Forward Lever
310	25822588	Cassette Lid Ass'y
311	25827593	Nameplate, Operation
312	25845576	Holder, Bariable Resistor
313	25817272	Cabinet Front Ass'y, Europe
313	25817273	Cabinet Front Ass'y, England
314	25825227	Handle Ass'y
315	25858361	Washer, Handle
316	25774471	Spring, Handle
317	22725156	Spring A, Battery

Symbol No.	Part No.	Description
318	22725132	Contact, Battery
319	22725133	Spring, Battery
320	22749190	Tuning Shaft Ass'y
321	25817619	Cabinet Back
322	25757082	Clamp, Telescopic Antenna
323	25827590	Nameplate, Main, Europe
324	25817620	Battery Lid Ass'y
325	22701237	Screw, BID M3 x 60mm, Tapping (BLK)
326	25836574	Knob, Volume, A
327	25836575	Knob, Volume, B
328	25836576	Knob, Tone
329	25836577	Button Ass'y, Push
330	25736572	Knob Ass'y, Tuning
331	25836573	Knob, Select
332	25865486	DC Jack Plate
	ACCESSORIES	
	22954487	Owner's Manual for Europe
	22954488	Owner's Manual for England
	22176541	AC Cord, Europe
	22176542	AC Cord, England
	22956534	Tag, French, Europe Only
	22950693	Caution